

The Amateur Radio

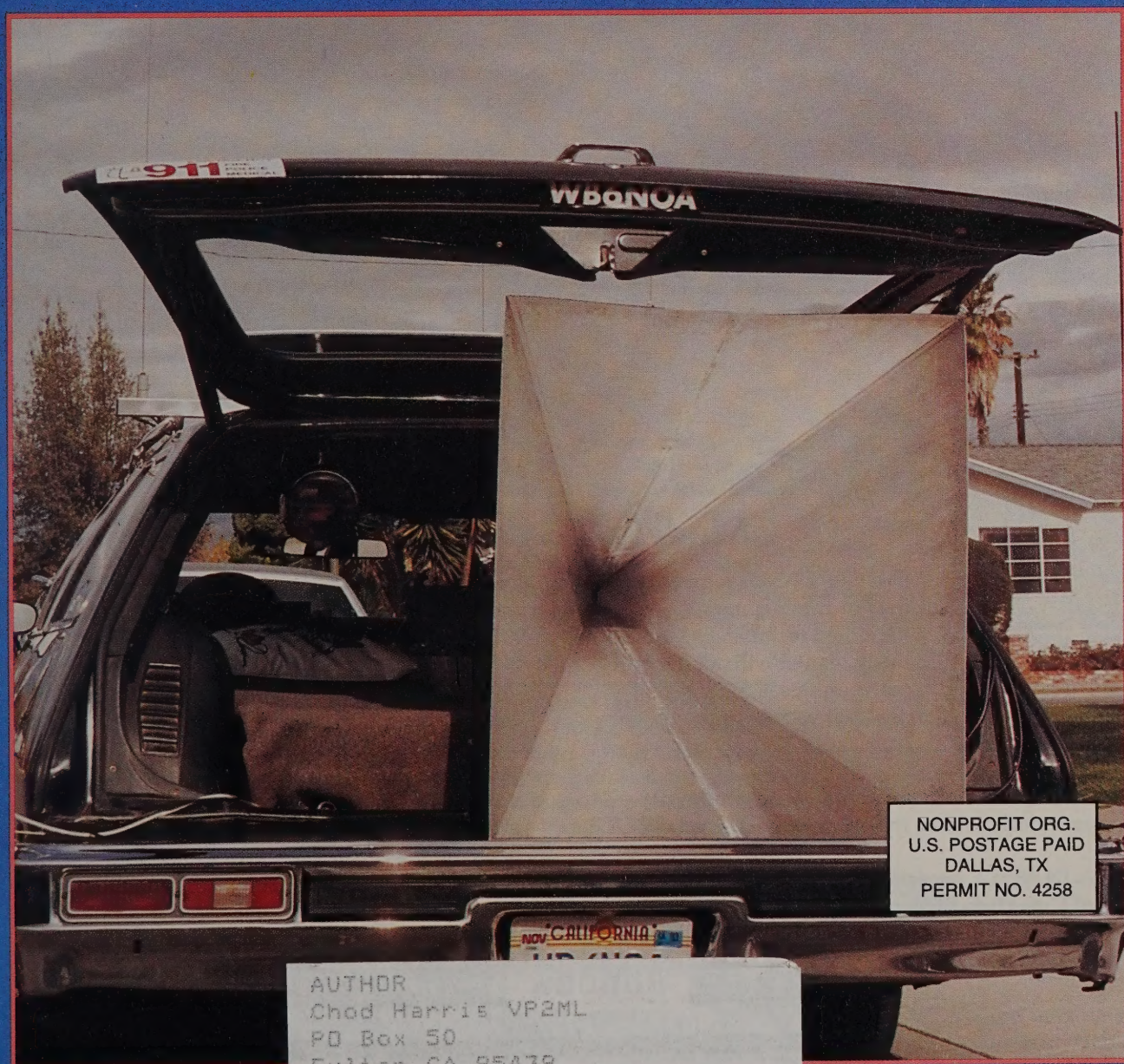
COMMUNICATOR

JULY/AUGUST 1993

FOR THE NOVICE AND TECHNICIAN AMATEUR

Volume 3 Number 4

- *Super-Range Tropospheric Ducting*
- *Public Service*
- *Outgoing QSL Bureaus*
- *First Contacts*
- *Dan and Burke*



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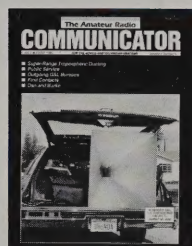
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ON THE COVER



It's summer and time to chase the elusive "trop." See Gordon West's (WB6NOA) column this month on working long-distance on VHF and UHF. Our cover this month shows Gordon's 10 GHz (that's 10,000 MHz, folks) setup for duct-hunting. If Gordo could work from California to Hawaii, it would be a new world's record. Stay tuned!

The Amateur Radio Communicator

The Amateur Radio Communicator is published bi-monthly and is the official journal of the National Amateur Radio Association (NARA), P.O. Box 598, Redmond, WA 98073-0598.

The National Amateur Radio Association is incorporated in the State of Washington and is a non-profit organization as defined in Section 501(c)(3) of the Internal Revenue Service Code.

Organization Goals

The broad goal of NARA is to publicize Amateur Radio and to encourage people to become Amateurs by earning an entry level Novice or Technician Class license.

The organization has five specific goals within this broad framework. These are to a) publicize Amateur Radio to the general public, b) attract young people to the Amateur Radio Service, c) increase the stature and benefits of the Novice and Technician Class licenses, d) represent the interests of Novice and Technician Class Amateurs at the national level and e) make all Amateurs aware that our radio frequencies are in jeopardy from commercial interests. More specifically:

A. NARA advertises in various consumer publications to create public awareness of the Amateur Radio Service.

B. NARA is interested in encouraging young people to join our fraternity. A core of young people insures growth of the Amateur Radio Service.

C. NARA believes that the Novice and Technician classes are important and respected entry level licenses into the Amateur Radio fraternity. We are committed to increasing their benefits and stature in the Amateur Radio community.

D. NARA is committed to representing the interests of all Novice and Technician Class Amateurs at the national level. We continue to review information from the Federal Communications Commission and submit material to them with the Novice and Technician perspective in mind.

E. Finally, NARA is very concerned that confiscation of frequencies assigned to the Amateur Radio Service will continue. NARA is committed to obtaining new spectrum for the continued growth in numbers of Novice and Technician Class Amateurs.

Membership and Subscriptions

Those joining NARA receive a subscription to *The Amateur Radio Communicator* for one year. The combined cost of membership and magazine is \$10.00 per year in all areas with a U.S. ZIP code.

The NARA membership and subscription to *The Amateur Radio Communicator* cannot be separated.

It is not necessary to hold an Amateur Radio license to become a member of the National Amateur Radio Association. The only "qualification" is an interest in radio communications.

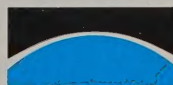
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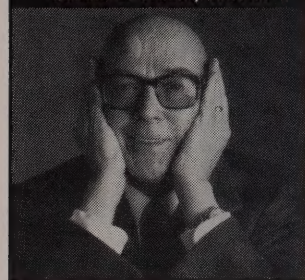
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NARA

NATIONAL AMATEUR RADIO ASSOCIATION

P.O. Box 201407
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An Editorial

by Don Stoner, W6TNS

WAYNE GREEN, W2NSD, made one of his customary pro f o u n d statements at the 1993 *Miami Hamvention*. He pointed out that hams tend to be reactive rather than creative. We look ahead to next week or next month, but not to next year or the next decade. He could have added "to the next century." It is hard to believe this historic milestone is less than seven years away.

Wayne's sentiment is certainly true as it applies to the FCC and Part 97, the *Rules and Regulations* under which Amateurs are authorized to operate. Petitions submitted to the Commission request perceived improvements or corrections to Part 97. Few try to head off problems of the future. The closest we have come to a "look ahead" petition in recent times was the one submitted in 1990 by the Quarter Century Wireless Association (QCWA). This document provided the foundation for the so-called no-code Technician class license.

But the Amateur fraternity would be well advised to start thinking about the future. If they do not, you can expect to read in a 2010 issue of *73 Magazine*, Wayne reminding us that he warned hams, but they didn't listen.

CODE IS ON THE WAY OUT

Conventional wisdom says that Morse will probably be dropped as a

requirement for HF access in the future. This could occur at the next General WARC (World Administrative Radio Conference). General WARCs are called to optimize the entire radio spectrum for all the nations of the world. They occur about every 20 years and the next should occur about the end of the decade.

The requirement for Morse has been steadily reduced over the years. At one time the frequency limitation

Technician class license. The rest is history, as they say.

Rather than endlessly debating that Morse will be dropped or that it is the salvation of ham radio, I believe we should make assumptions and plan accordingly. Do we want the code requirement dropped? Should we give a written test for HF access? Or should we simply wait until it happens and howl to the FCC?

LINE-OF-SIGHT HAMS

There is another, equally important factor that we Amateurs should be considering. Long before the end of this decade, the predominant license will be the Technician class. There is nothing inherently wrong with this. The creation of the Technician class is the best thing to happen to ham radio since the introduction of packet. Even the FCC calls it an "unqualified success."

But we are creating a ham class with a limited vision of the Amateur Radio Service. In many cases, a Technician's exposure extends only so far as their line-of-sight. Admittedly, Technicians can work with satellites, computers, public service, repeaters, FM and a host of other marvels. Maybe I'm an OF (old fellow), but I think there is more to the world of ham radio than this.

I believe our newcomers should be encouraged to expand their horizons to the total experience by upgrading their license class. They should be exposed to HF, make new friends around the world, experience the miracle of propagation and, yes,

I believe our

newcomers should be

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the total experience

by upgrading their

license class.

was 1,000 Mhz or 1 GHz. If you wanted a ham license, you had to know the code. Then, in 1947 the cutoff frequency was reduced to 144 MHz. Much later the requirement was reduced to 30 MHz. This last reduction brought about the revised

cope with the annoyance of QRM and QRN.

In the next decade, as the old timers become silent keys, we could actually have a situation where our HF bands are under used. Snicker if you will, but what if I am right?

AMATEUR RADIO AND THE FCC

Another trend concerns me. We Amateurs are creating more and more problems for the Commission. Certainly much of this is the result of our more permissive society, obsession with civil rights and free speech, plus a statistical increase in the number of hams. But as these problems increase, Amateurs are doing less and less to resolve the problems.

Take the case of lawbreakers on a repeater. The first thing we want to do is call the FCC. Sorry guys, but they cannot divert precious resources just because some clown is jamming a repeater or engaging in other antics.

Remember, Amateurs are supposed to be self-policing. We are supposed to keep our own nest clean. What can you do about these types

of problems? Find the culprit(s) first. Your club does have a "fox hunting" activity, doesn't it? Document the violations, and the investigation as clearly and completely as possible and then turn the matter over to your ARRL Official Observer. Understandably, if you can make the job of the FCC Enforcement Division as easy as possible, the more likely they will be able to put an end to the problem. They don't have sufficient

investigative resources and shouldn't be expected to do our job.

Bottom line, the message is this. When and if we become a burden to the FCC, you will find the Amateur Radio fraternity more susceptible to the onslaught of commercial interests. If we lose more spectrum, it will be because we created the environment where it could happen.

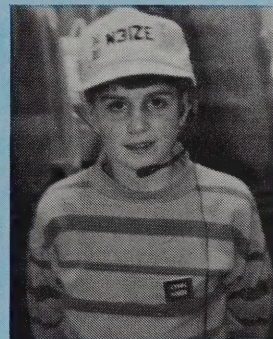
73 from Don, W6TNS



THE FUTURE OF OUR HOBBY

Talk about "radio active!" This young man was communicating up a storm when we collared him at our 1993 Dayton Hamvention booth.

Lynn Hummel, N3IZE, is 13 years old and hails from Clearfield, Pennsylvania. He has been a ham since he was 10 years old and presently has a General class ticket.



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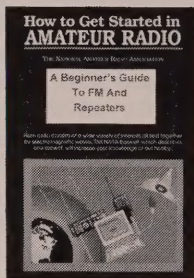
What do you do with ham information that is too extensive for a magazine article, yet too small for a book? If you are NARA, you create a new series of booklets called *How To Get Started In Amateur Radio*.

DON'T HATE YOUR HANDHELD RADIO!

Our first new booklet in the expanding series is called *Understanding Your Handheld Radio*. Everyone who has muddled through a handheld instruction manual needs this booklet!

Our inspiration for writing the informational booklet was a review of the manuals that are supplied with today's radios. We couldn't believe the complexity of the instructions.

The author, long-time Amateur Don Stoner, W6TNS, experienced some of the frustrations of a beginner when he purchased a new handheld. His booklet tells beginners all those things the manufacturer forgot to put in their manual or assumed the purchaser already knew. For example, *Understanding Your Handheld Radio* discusses terms like PTT, squelch, LCD, specifications, accessories, antennas and other aspects that are a total mystery to the beginner.



AND DON'T FEAR YOUR REPEATER

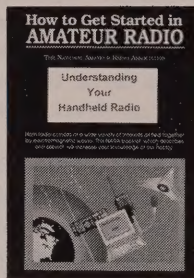
Many NARA members have heard of Bill Pasternak, WA6ITF.

Not only is Bill a well-known writer (columns in *73 Magazine*), but he also does *NEWSLINE* which is heard on more than 6,000 repeaters throughout the United States.

Bill has created our second booklet called *A Beginner's Guide To FM And Repeaters*. He gets into the background of frequency modulation communication, how repeaters evolved and how they work.

After reading *A Beginner's Guide To FM And Repeaters*, you will understand the difference between open and closed repeaters, autopatches, repeater courtesy, frequency shifts, coordination and band plans.

Bill also understands how a newcomer feels making that first repeater contact. His chapter, *Your First QSO*, helps put the newcomer at ease.



Collect the entire *How To Get Started In Amateur Radio* series! Each booklet is priced at only \$3.95. They are available at all major ham radio stores or directly from NARA (add \$1.00 S&H).

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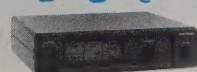


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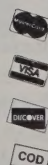
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The Ninth Annual Baker to Las Vegas Challenge Cup Race

by Patti D. Fleetwood, KB6TZF

Editors Note—Now that you have that coveted Amateur license, what can you do with it? Besides chatting on the local repeater, you can get involved in public service. One activity where ham radio can provide real assistance is supplying communications for races of various types. Here's one story of how hams help out in a famous foot race.

A LONG WITH the privilege of having earned your ham radio license, you have several options when it comes to using that license, whether it be for public service or a special event. Of course, there are several search and rescue groups, but if you're just looking for something fun to participate in, then a locally organized race may be just the ticket.

THE CHALLENGE CUP

One example of a race that is largely supported by volunteers is the ninth Baker to Vegas Challenge Cup Race. "This is an annual relay race, organized by the Los Angeles Police Revolver Club, to promote camaraderie between law enforcement agencies," explained race director Chuck Foote.

"The Challenge Cup is not a sponsored event, but rather a strictly competitive race for law enforcement personnel. There are no monetary prizes and all costs are picked up by the individual runners and/or teams; they all pay into a fund which pays for all operating expenses, their own

"awards, and volunteer T-shirts and jackets."

The success of this event depends largely upon the support of the volunteers, which consists of ham operators, police, volunteer EMTs and Good Sams of America. Of these volunteers, approximately 200 are communications related.

According to Foote, "There are four different groups of hams that officially participate in the race: Los

Angeles area Hamwatch, LASD RACES and the Las Vegas and Parhump chapters of Amateur Radio operators.

Also supporting the race are the Los Angeles, Orange and Nevada ARRL section managers along with the southwest ARRL Division Director. Established as a multi-jurisdictional RACES exercise, communications are officially handled through ARRL, but organized by Hank Magid (K6YMJ), the Los Angeles Section Emergency Coordinator.

Magid explained, "We now have two teams of hams based at each post, because the race has gotten so big. DCS (Disaster Communications Service), a group associated with the L.A. County Sheriff's Department RACES, also participates as Challenge Cup Relay volunteers. This particular group, as well as those taking their breaks, provide runner location services. They are responsible for locating individual runners and relaying that information to those requesting it."

BE PREPARED FOR EMERGENCIES

The role of the communications volunteer is that of Emergency Communications. Along the race route, there will be mobile medics on hand for minor medical problems. However, if the medics should become detained or an emergency of more serious nature should arise, it is the ham operator's responsibility to relay the necessary information to incident command at the Hacienda Hotel so that they may summon an ambulance. Hams are

One activity where

ham radio can provide

real assistance is

supplying communications

for races of

various types.



Pahrump Valley Amateur Radio Club has its communications station set up ready to go.

also responsible for following in the last runners on the course, so that position is known to the command post.

In addition to communications, the volunteers also handle the timekeeping of the race and report this information to command post immediately following their shift, so that race results may be compiled for the awards ceremony three to five hours after the completion of the race.

THE RACE ORIGINS

The Baker to Las Vegas race was founded by Chuck Foote and Larry Moore (assistant race director). The first race was held in 1985 and drew only ten teams. The race started at Baker High School and ended at Blue Diamond Road, just south of Las Vegas, with an awards ceremony held in an impromptu campground near the finish line.



A communications station at an early checkpoint in the race. The "relay" or hand-off is taking place near the red cone.

In 1986, the route was changed so that the finish line of the race would be in town near banquet facilities in order to accommodate the awards ceremony. Being the first hotel on the strip, the Hacienda Hotel was the most logical choice. The race, a course 120 miles long, now starts on Saturday, 18 miles north of Baker, California on Highway 127, runs through Parhump and Shoshone and finally on to Las Vegas, Nevada, on Sunday.

Last year, thanks to the fun had the previous year and the hard work of Foote and his staff, the number of participating teams jumped to 143!

Through the years, the "Challenge

Cup" has gained enormous popularity and with it, an increasing number of participants - both runners and volunteers. In 1987 and 1988, there were 60 and 76 teams respectively. By 1992, there were 134 teams with 2,680 runners plus alternates for each.

The "Challenge Cup" has come a long way in nine years. Now up to 142 teams, consisting of 20 runners each with a maximum of five alternate runners and 40 support personnel per team, over 3,500 runners and support personnel participated in this year's event.

Runners compete in five categories: open, mixed, women only, "800", and "300". The "Open" category poses no restrictions on its teams, while "Mixed" requires a minimum of five females on each team. The "800" category consists of teams whose members' ages total 800 years or more. For those agencies from small areas, there's the "300" category, for police units who come from a system of 300 or fewer personnel.

To help with any medical emergencies that may arise, a triage unit was set up early on the course (for heatstroke, etc.) along with two helicopters and three ambulances on standby, just in case.

The "Challenge Cup" has gained much recognition among law enforcement agencies worldwide and, therefore, it is no longer necessary to advertise for participants. Now, teams line up just to get a chance to run.

GET INVOLVED

However, new volunteers are always welcome as they are in many other "fun" activities worldwide. For information about events in your area, contact your local Amateur Radio club or local ARES/ARRL and/or RACES leadership. To get more



The finish line in Las Vegas.

information about participating in the Baker to Vegas Challenge Cup Relay Race, you may contact The National Amateur Radio Association, and they will pass the information on to the proper place.

Photos provided by the Los Angeles Police Revolver Club.

73 de Patti Fleetwood, KB6TZF ☐



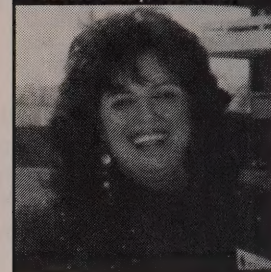
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Smarts, Hearts and Sparkle

by Carole Perry, WB2MGP

AFTER TEACHING *Introduction to Amateur Radio* to 6th, 7th, and 8th graders for the last 12 years, I have concluded that there are three ingredients necessary to have a course that really "flies" with the kids. The components that teachers should concern themselves with are "smarts, hearts, and sparkle."

One of the keys to having a successful program is "smarts." This refers to the educational validity of the course. This is especially important if you are trying to convince a school administrator to allow you to teach an Amateur Radio course. Fortunately, amateur radio in a classroom allows you to teach every other subject in the school's curricula. Science and math skills are an integral part of the radio curriculum.



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Ham radio

kids have a

high motivation

for learning

geography

Language arts skills are constantly reinforced as children practice speaking clearly and succinctly on the radio. Writing skills are taught daily as

the class responds to QSL cards and writes letters to other classes they've made contact with. Teaching children to "listen" as they practice code is helping them in all their studies.

PROVIDE CHALLENGING MATERIAL

Social studies is taught on a need-to-know basis. There is nothing more natural for the kids to do than to run to the big wall map I have in the room and try to locate where the voice on the radio is coming from. Ham radio kids have a high motivation for learning geography. They are also constantly involved with current events as they occurring; as when my class contacted a school in Los Angeles as they were experiencing an earthquake tremor.

The "smarts" part of the ham radio program is the ability to present material challenging enough for the more gifted student, and capable of exciting the more "reluctant" learners.

INCREASE SELF ESTEEM

The "hearts" component of my magic formula is the ability to make the youngsters feel good about themselves and therefore perform better in school. Ham radio in the classroom allows the teacher to introduce a myriad of skills that allow children of different backgrounds and abilities to master at their own speed. The ability to speak to astronauts, doctors, dentists, teachers, clowns, and people from so many different walks of life who welcome the children to the hobby, makes them feel special. *Today's children don't care that we know; they want to know that we care.* Every child should leave the room feeling good about himself because he was able to master a new skill, perhaps for the first time in his school career.



It is important that every

child coming through

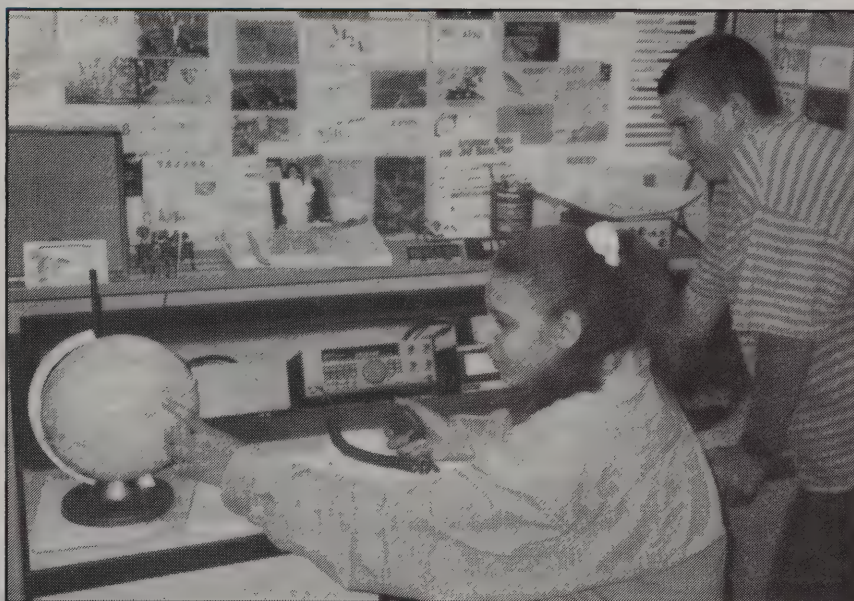
the ham radio program leaves

with confidence and with a

good feeling about himself...

MAKE YOUNGSTERS FEEL ACCEPTED

"Sparkle" is the really special factor in the formula. A truly successful program has a teacher or instructor who is enthusiastic, innovative and dedicated. It is the human factor in the equation that will make the



Ham radio students learn Social Studies and Geography skills on a need-to-know basis.

difference between a good class and a great one. "Sparkle" is the nod of approval to a youngster who has succeeded, or the words of encouragement to the student who is becoming frustrated. It is the smile of acceptance and the behind-the-scenes machinations that a teacher adds to the assurance of a class where children feel comfortable. If the environment is one where children feel respected and secure, then they will surely flourish. It isn't important that every single youngster gets a ham radio license. It is important that every child coming through the ham radio program leaves with confidence and with a good feeling about himself and the way he participated in a meaningful and fun program.

There is little doubt that a teacher or instructor has the power to influence the lives of the students he is in front of everyday. I have personally witnessed children's lives being changed for the better as a result of their experience in the "special" ham radio room in our school.

For more ideas on how you can enhance the learning experiences of youngsters via amateur radio, please feel free to write to me so we can share ideas. Address correspondence to: Carole Perry, WB2MGP, P.O. Box

1646, Staten Island, NY 10314
73 from Carol, WB2MGP

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Dan & Burke



A Glitch In Time

It was almost the end of an exasperatingly beautiful, warm, sunny day. Exasperating, because Dan and Burke were sitting in summer school class listening impatiently to the voice of the Latin teacher droning on and on about the second conjugation. Their eyes were on the clock over the door.

Suddenly the voice of the principal issued from the intercom speaker: "Miss Manders, will you please have Burke Bishop and Dan Anderson come to my office at once?"

The boys rose from their seats at a nod from Miss Manders and started for the door. They could feel the backs of their necks growing hot under the concentrated questioning stares of their classmates.

"Now what've we done?" Dan muttered as they walked along the hall.

"Rather, what have they caught us at?" Burke whispered.

Burke knocked at the office door, and the sight of the principal's smiling face banished their worries.

"Boys, this is Mr. Stevens from Center City," he said. "Mr. Stevens is here to straighten out a little trouble we're having with our new automatic clock and bell system."

Tall, thin, bespectacled Mr. Stevens stopped his nervous pacing about the office long enough to shake hands.

"He needs a couple of boys to help him with his testing," the principal explained. "I suggested you two because of your interest in electricity and electronics. I have to leave for a board meeting, but I'm sure you three

can get along without my help—especially since my wife says I can't even plug in the electric toaster and do it right!"

As the principal closed the door behind him, Mr. Stevens slumped into a chair. Nervously tugging at his ear, he stared searchingly into the faces of the two boys. Finally he spoke.

"Boys, I'm going to level with you. I'm between a rock and a hard spot. Actually, I'm a computer serviceman. The man who is supposed to take care of these clocks is on vacation, and I'm pinch-hitting for him. I know just a little about the system, but that little doesn't seem to be enough to find the trouble. I've spent three days on it, and my boss is beginning to ride me. He thinks a man who can fix a computer should be able to fix anything. On top of that, my wife called last night and said that my little boy is sick—I should be home with them.

"The principal tells me you two are sharp on electronics. I hope he's right, for I certainly could use some help."

"What's wrong?" Burke asked.

"All the clocks in the building are supposed to keep in step with the master clock here in the office," Mr. Stevens replied, as he sprang up and renewed his pacing. "Every fifty-ninth



minute this master clock causes a radio frequency signal to be fed into a power amplifier located there in the closet. The signal is built up to several watts and fed into the 117-volt AC line. It goes out over the power lines to the electric clocks plugged in in the various rooms.

"Inside each clock is a tuned circuit. The primary in series with a capacitor is connected directly across the AC line. The coil and capacitor are series-resonant at the radio frequency, so maximum current flows in the primary. RF voltage developed across the resonant parallel-tuned secondary fires a silicon controlled rectifier. Current through this SCR actuates an electric clutch that causes the sweeping second hand to pick up the minute hand and carry it to the vertical position before dropping it. Every twelve hours a similar arrangement corrects the hour hand.

"In some installations the correction takes place at 6 AM and 6 PM, but the hour hand is corrected at noon and midnight in this setup. Different radio frequencies are fed

Dan & Burke

into the line by the clock at preset times. These signals are picked up by other resonant tuned circuits with SCR's that close relays and ring bells in the classrooms. By using different frequencies, the bells of different rooms can be rung at different times so a complex time schedule can be accommodated.

"Every morning several of the room clocks indicate the wrong hour. Others are on time. Different clocks are incorrect on different mornings. At noon they are all automatically corrected, and they stay on time until school is out. But the next morning it's the same old story.

"What have you done so far?" Dan wanted to know.

"I've checked the RF generator and the power amplifier thoroughly. All the tones are on frequency, and there's no parasitic oscillation or noise in the amplifier. I've checked the tuning of the resonant circuits in the clocks to make sure they're right on frequency. I've gone over the wiring. And I've measured the clock-setting signal at all the clocks—it's supposed to be in excess of 0.8 volt, and it is.

"Incidentally, the coupling between the primary and secondary of each tuned transformer is variable so that the voltage delivered to the SCR's can be kept uniform in spite of different audio voltage levels present across the wall sockets into which the clocks are plugged. Since the audio signal must thread its way through the maze of AC wiring and be subjected to various bypassing actions of different loads on different parts of the wiring, it is understandable that these levels would be different."

"It's kind of funny that nothing happens during the day," Burke mused. "Maybe something the janitors do at night upsets the clocks."

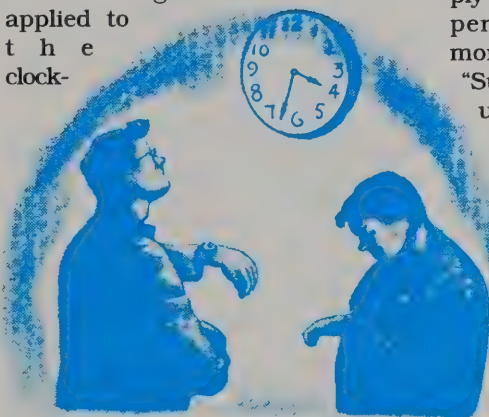
"I thought of that. The only electrical apparatus they use regularly is a power vacuum sweeper. When the vacuum is running, it produces some noise on the line, but this noise only measures .2 volt—far too low to trip the clock-setting mechanism. Oh, yes, there's one odd thing the

principal noticed: more clocks seem to go crazy when it rains. That would point toward humidity as the cause of our trouble, but I can't imagine how."

"Do you have any other ideas?" Dan wanted to know.

"Just one. Today I figured that line voltage variation occurring at night might somehow upset things, so I borrowed this variable-voltage transformer from a TV shop. I'll crank the voltage applied to the signal generator and the power amplifier up and down while you two check the clocks in various rooms to see if anything happens."

Dan and Burke went from room to room inspecting the clocks while Mr. Stevens raised and then lowered the line voltage applied to the clock-



regulating equipment by ten percent. The clocks never budged.

"Well, there goes my last idea," Mr. Stevens said dispiritedly as the boys came back into the office. "I just don't know."

He was interrupted by the ringing of the telephone on the desk. He answered it, and the boys could see him becoming more and more agitated as he talked.

"My little boy has just been taken to the hospital for an emergency appendectomy," he reported as he hung

up the telephone. He began gathering up his tools and throwing them into his tool box. I must go home at once. Have the janitor lock the office. I don't know when I'll get back." This last sentence was shouted back over his shoulder as he dashed out the office door.

Dan and Burke hunted up the janitor and delivered the message, then started for home.

"You know," Dan remarked, "I feel sorry for Mr. Stevens. He really has trouble. I wish we could help him."

"Maybe we can," Burke answered. "Let's go to school a half hour early tomorrow and check those clocks ourselves. We just might get lucky and stumble onto something."

The next morning the boys found only seven of the forty-one clocks with the incorrect time. Two were in the basement, three on the first floor, and two on the top floor.

Shortly before noon it began to rain, so Dan and Burke ate lunch in the school cafeteria. As they ate, they puzzled over their problem. "It simply has to be something that happens between midnight and morning," Burke finally decided.

"Suppose we ask the principal to let us snoop around here tonight and see what goes on."

The principal readily agreed to the plan and gave the boys a pass key that would let them into any of the classrooms. The sensible thing would have been for the boys to go to bed right after supper and get some sleep before midnight, but what did our heroes do? They

stayed up and watched Rush Limbaugh until a quarter of twelve! Then they set out for the school, Burke carrying an AC voltmeter, and Dan a pair of binoculars.

Quietly, they let themselves into the dimly-lit building. There was something spooky and a little sinister about the empty halls and the closed doors of the classrooms. From somewhere in the building came a faint humming sound, and they moved softly about in their sneakers until they located it. The hum was

Dan & Burke

coming from the large tank of an industrial vacuum sweeper which was sitting on a low cart in front of an open door.

As the boys peered around a corner, the janitor came out of the room and piled the long flexible hose of the vacuum cleaner on the cart, re-covered the line cord that had been plugged into a socket in the room, and pushed the cart to the next door.

It took the janitor only a few minutes to vacuum this room, but he apparently decided that the floor of the next one was so dirty, it needed to be washed. First he slosh sudsy water over the floor and gave it a quick going-over with a rotary wet vac. Then he used the vacuum to suck up the excess water. As he did this, the boys could hear the motor of the cleaner slowing down in protest. Finally, he went over the floor with a clean mop and clear water.

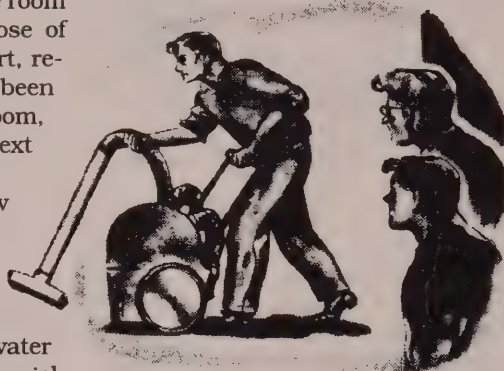
Burke silently beckoned Dan into a class room across the hall. The floor was still damp, and the clock was four hours fast!

"I've got an idea," Burke whispered. "You take the key and get into that wing across the way where you can see the clocks in the rooms the janitor is cleaning. Don't let him see you. I'll be doing some checking here. We'll meet in this room in half an hour."

Dan waited until the janitor had started on another room and then slipped away.

Burke tiptoed across the hall to a baseboard outlet socket just outside the room in which the janitor was working. There he plugged in his own version of a tuned circuit he had made from an old television inductor. Placing his voltmeter across the secondary of the transformer enabled him to read the voltage of any clock-setting signal on the line without interference from the 60-Hertz AC.

When the janitor switched on the vacuum cleaner, Burke got a reading that represented 0.2 volt; but when the sweeper began to suck



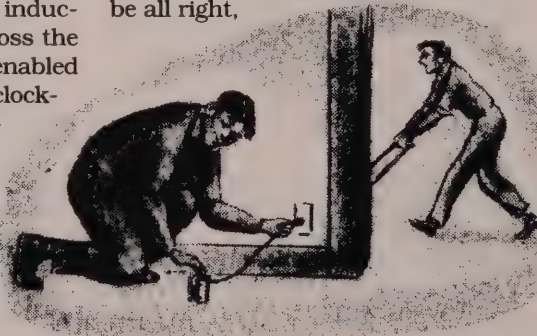
up water, this reading hit the pin on the meter (went full scale)! With a smile of satisfaction, Burke unplugged his apparatus and returned to the rendezvous room to await Dan.

The latter soon appeared, his eyes wide with excitement, and his uncased binoculars dangling about his neck. "When that vacuum sweeper begins to suck up water, the clock in the room goes crazy," Dan reported.

They did not discuss the matter further. It was two o'clock in the morning, and both boys were growing very sleepy. They slipped out of the building and went straight home to bed.

When Dan and Burke arrived at school the next morning, Mr. Stevens was standing on the steps, smiling and relaxed.

"My little boy is getting alone fine," he said, "and I feel like a new man. I guess I needed a shock to show me what was really important. Now that my son is going to be all right,



nothing else bothers me. We'll lick this clock thing in time, and I refuse to get worked up about it again."

Excitedly, both boys talking at once, Dan and Burke told him what they had observed the previous night.

"That's it!" Mr. Stevens exclaimed. "The vacuum cleaner was only sucking air when I checked it. When it sucks water, the motor works harder and produces a noise of the right amplitude and frequency to trip the clock-setting mechanism in the room where the vacuum sweeper is being used. It's too weak to bother more distant clocks, and even the clock in the room isn't disturbed during the vacuuming process. Well, installing a noise filter inside the motor housing will stop the noise in a jiffy."

"Only one thing bothers me," Dan said slowly. "Why did more clocks get out of synch when it rained?"

"That's easy," Burke broke in. "When it rained, the kids tracked in more mud, making it necessary to scrub more rooms that night. So more clocks were off the next morning."

"I don't know how to thank you fellows," Mr. Stevens said sincerely.

"Well," Dan suggested slyly, "you could say you needed us to help you install that noise filter during the Latin period. We're due to have a quiz, and—"

"Say no more!" Mr. Stevens interrupted with a chuckle. "I'm sure I need you more than Caesar does today."

Dan and Burke is based on a storyline created in 1954 by John Frye, W9EGV. The boys are the sons of John's original characters, Carl and Jerry.

John Frye is no longer with us. But while he was alive, John was an avid Amateur Radio operator who wrote about young people—for young people.

It's doubtful that anyone could make John's stories more interesting or improve on his words. We'll settle for giving them a 1990s twist.

If you would like to learn more about becoming an Amateur, or helping a young person become an Amateur, write to the National Amateur Radio Association, P.O. Box 201407, Arlington, TX 76006 or call (800)468-2426.

Cold, crisp winter nights, the room illuminated only by dial-lights and vacuum tube filaments, the faint whisper of a faraway station at the edge of the noise....

by Robert Dunn, WA5WJZ

IT'S PART OF THE FUN of Amateur Radio. Even when you have a firm grasp of the science involved in propagating a radio signal from one place on the planet to another, there is still something akin to magic that happens.

Almost 25 years later, I still remember my first faltering contact. It was on the 40 meter Novice band and, even though it was a prearranged contact with a buddy who had also just gotten his license, it was nonetheless thrilling. As I heard the dits and dahs as he tapped out my callsign, I knew I was connected. I was in!

Via the mystical ether, with the aid of the great gods of the ionosphere, with the ghosts of Marconi, Maxim and Armstrong smiling down on me, I had hooked into another intelligence in a distant part of the globe (or in this particular case, about five miles away!).

A good friend of mine tells of his first contact, also as a Novice: Using the full legal limit of the day, 75 watts, he tapped out a CQ and, to his amazement, someone answered. Someone answered! In the excitement of the moment, he promptly forgot most of his Morse code and ran around the house yelling that he had made contact. His dad, who had been a radioman in WWII and still remembered the code, helped him through that first contact. When my buddy retells the story, to this day you can see in his face the joy he experienced in that moment.

Time and technology have advanced. With computers, satellites, e-mail, fiber optics, etc., the concept of communicating via radio may seem, to some, a bit quaint. To thousands of others, people who identify themselves not just with their names, but with mysterious combinations of letters and numbers, connecting with another soul via radio is, at the risk

of sounding goofy, a mystical experience.

This is a long-winded way of saying that anybody who is in "great anticipation" of his first contact probably is already attuned to the "stuff" of ham radio. I know that your first contact will be, if not memorable, at the very least exciting for you.

73 de Robert Dunn, WA5WJZ

An Antenna-Raising Accident (Author Unknown)

Dear Sir or Madam:

I am writing in response to your request for additional information for box #3 on the accident reporting form. I put "poor planning" as the cause of my accident. You said in your letter that I should explain more fully and I trust that the following details will be sufficient.

I am an Amateur Radio operator, and on the day of the accident I was working alone on the top section of my 80-foot tower. When I had completed my work, I discovered that I had, over the course of trips up the tower, brought up about 300 pounds of tools and spare hardware. Rather than carry the now unneeded tools and materials down by hand, I decided to lower the items down in a small barrel by using a pulley, which fortunately was attached to the gin pole at the top of the tower.

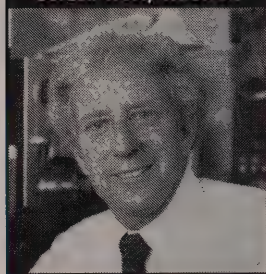
Securing the rope at ground level, I went to the top of the tower and loaded the tools and materials into the barrel. Then I went back to the ground and untied the rope,

holding it tightly to insure a slow descent of the 300 pounds of tools. You will note in box #11 of the accident reporting form, that I weigh only 155 pounds.

Due to the surprise of being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate of speed up the side of the tower. In the vicinity of the 40-foot level, I met the barrel coming down. This explains my fractured skull and broken collarbone. Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley atop the gin pole.

Fortunately, by this time, I had regained my presence of mind and was able to hold onto the rope in spite of my pain. At approximately the same time, however, the barrel of tools hit the ground and the bottom broke out of the barrel. Devoid of the weight of the tools, the

(Continued on page 22)



Super Summer Range

by Gordon West, WB6NOA

VHF and UHF "super-range" is indeed possible under very common and predictable conditions.

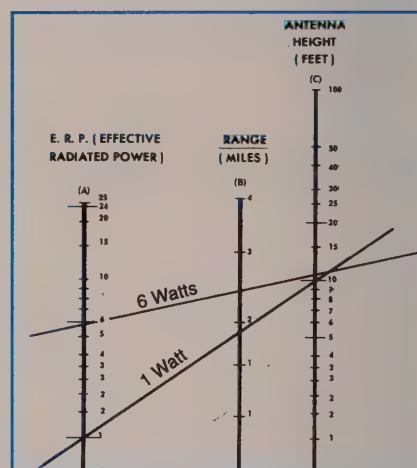
HOW FAR CAN you communicate on your VHF or UHF transceiver? It's a good question, and

the common answer goes something like this—VHF/UHF signals travel line-of-sight, so the distance you might talk over can be anywhere from five miles up to 100 miles. That makes sense to me, how about you?

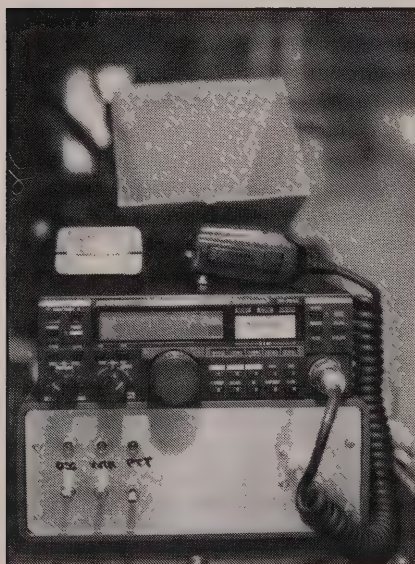
Radio wave propagation at VHF and UHF frequencies may be reliably predicted from the formula: $D = \sqrt{1.41 H}$ (height). To the geometrical or optical horizon, the formula is: $D = \sqrt{1.23 H}$ (height). And to calculate the range between two VHF stations, compute the radio horizon range of each station, and then add those two ranges together.

Increasing the power or effective radiated power (ERP) of your VHF or UHF station may help add a couple more miles of communications range. But in order to really hear a difference, the changing power level would have to be at least a four times increase to be noticeably better. It would be far easier to elevate your antenna, and go to a gain-type of VHF antenna, to pick up additional range. This is more productive than switching your equipment from low power to high power.

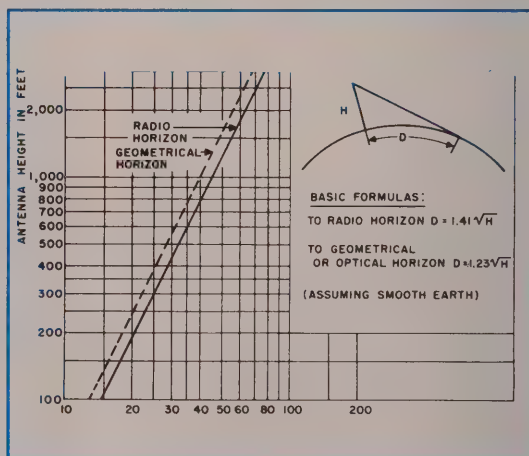
After all, look at the space

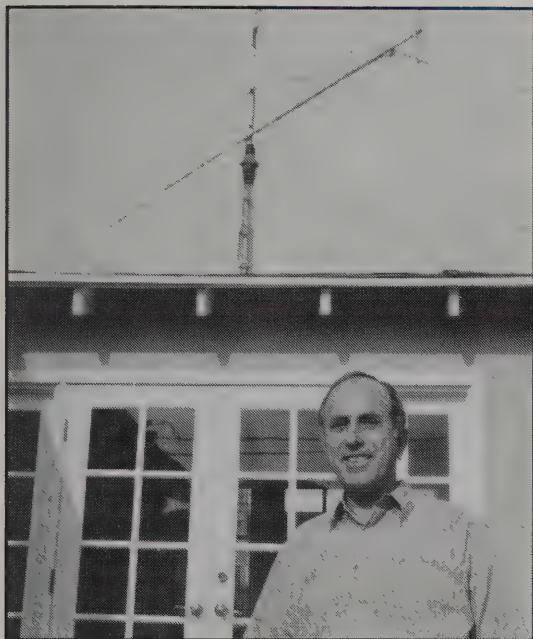


shuttle crew—they are communicating to us over distances of 200 miles and up, and we hear them loud and clear. Yet, they are into a unity gain antenna, and power levels generally below three watts. As long as you have a line-of-sight path to the other station, your range will certainly go



Gordon West's 10 GHz tropo station using SSB electronic transverter.





Paul Lieb, KH6HME, tropo DX record holder from Hawaii to California on all VHF/UHF bands.

out to at least 50 miles, and many times up to 100 miles.

LONG DISTANCE COMMUNICATION

But what about that story of the new ham operator setting up a 25-watt, 2-meter VHF base station in his house? He or she puts the antenna—a simple ground plane—up at roof level, and the first repeater contact was over a path 600 miles away! What? Work more than a couple hundred miles to another ground station on VHF or UHF with plain ol' FM gear? Impossible you say, right? Wrong!

VHF and UHF “super range” is indeed possible under very common and predictable conditions. This extra-long base, mobile, and sometimes handheld range has nothing to do with the ionosphere, sunspots, or regular line-of-sight calculations. Rather, VHF and UHF super range occurs because of local weather conditions.

The weather condition that is responsible for long-range VHF and UHF simplex and repeater communications is called *tropospheric ducting*. You studied this phenomenon when you prepared for your entry-level license examination. Several

questions in 2 and 3(A) talked about propagation. Remember them?

IT CAN HAPPEN TO YOU

Beginning right now—this summer—weather conditions are starting to form, that may trigger a tropospheric ducting event in your area. Large, stable, high pressure systems begin to form over portions of the United States, the Atlantic, the Pacific, and the Gulf regions. If the jet stream doesn't blow these systems apart, these high pressure cells begin to build up in our upper atmosphere, and spread out over several hundreds, and sometimes up to a thousand, miles. After a couple of days, the high pressure

cell begins to sink down toward earth because the air within this system is heavier than the other air around it. This is called *subsidence*.



What? Work more than

a couple hundred miles

to another ground station

on VHF or UHF with plain

'ol FM gear? Impossible

you say, right? Wrong!

As the heavier air sinks within the high pressure system, the air pressure increases, causing the air to get warmer. The same thing

happens within a tire pump—if you squeeze the air, it gets hot.

At about the 1,000 foot level, the high pressure system flattens out, and overrides cool, moist wind down below, usually associated with a large water mass. This means we have cool air below, cool air well above, and warm or hot air stuck in the middle. And it's this warm air “duct” that traps VHF and UHF radio waves like a wave guide, and funnels them over hundreds and even thousands of miles within the high pressure cell. You can sometimes see this common weather phenomenon as brown stagnant air, hanging over the horizon, trapping unbearable humid air below.

CHECK FOR “TROPO”

Your first indication of a forming VHF/UHF, super range, tropospheric duct is by local weather reports, and a quick glance out of your second story window. Is it a hot, windless day with unbearable heat? Is there smog hanging on the horizon? Is it a weather pattern that is supposed to stay “stagnant” for the next few days? If so, get ready for some SUPER RANGE!

If you have a television on an outside antenna, try tuning in the unused channels in your area. Chances are you're going to begin to pull in stations well over 200 or 300 miles away. This is another clue that the VHF and UHF bands are beginning to “open” within the tropospheric duct.

Next, tune around the 2-meter band, and listen for repeaters on frequencies that are normally vacant. Turn the squelch off, and carefully tune from the bottom to the top of the 2-meter band, the 222 MHz band, the 450 band, and the 1270 MHz band. Also try to key-up some very distant repeaters within the privileges of your amateur license. If you hear the repeater identify, try to pick out the call sign, or tape record it for further scrutiny. Always give your call sign after triggering a repeater, and listen for a response. Who knows, it might be a repeater five states away!

A beam antenna will certainly help

over the conventional single-band, dual-band, or tri-band vertical antenna. Power levels over 50 watts might not be necessary. Sure, more power will help quiet the background noise, but when the band opens to tropospheric ducting, major power output is not required.

Try tuning in the 162.550 and 162.400 weather stations. Since all the National Weather Service stations transmit rock-solid on their assigned

Tropospheric ducting

conditions may last

up to five days.

Most will last at

least 48 hours if the

weather system

stays put.



Extra Class ham, Scott Earl, KC6WRK, and his dad built their own 2-meter beam antenna for tropo DX work to Hawaii.

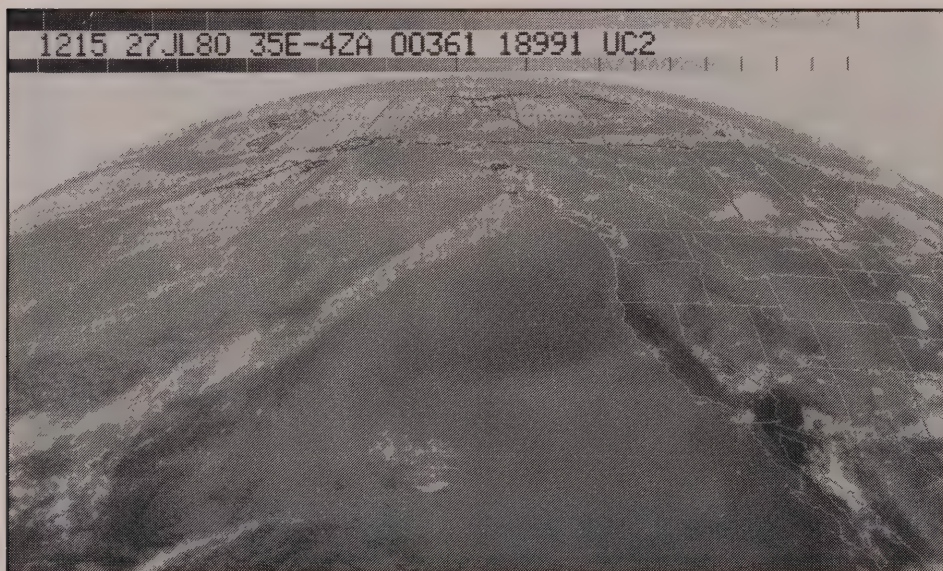
frequencies, you might many times hear more than one distant weather service coming over your handheld or mobile unit. Try to pick out their aural call signs when they identify with their call letters and area.

Tropospheric ducting conditions may last up to five days. Most will last at least 48 hours as long as the weather system stays put. The high pressure tropospheric duct is most

common, but tropospheric ducting is not limited just to subsidence. Tropospheric ducting may also occur along well-defined weather front boundaries, and typical "boundary" tropo ducting has occurred the distance of Chicago to Texas, Maine to Florida, and Wyoming to New Mexico.

High pressure tropospheric ducting is a regular summertime occurrence between California and Hawaii (the record distance), Texas to Florida, and New York to the Bahamas. These tropospheric ducts are usually related to over-water high pressure systems.

So what is your best range on VHF or UHF from tropospheric ducting? Remember, it has nothing to do with ionospheric skip—rather, it's a several day event that you can predict quite reliably by just watching the weather channel, looking at the newspaper weather reports, sticking your head out the window, and seeing what's happening all around you on a hot windless day.



Weather maps showing a Pacific high of undisturbed clouds spell an incoming tropo system.

73, Gordon, WB6NOA

The Secret Is Asking The Right Questions

by Matt J. McCullar, KJ5BA

WHEN YOU TURN on the rig and prepare to spend a few hours chatting at the microphone, key, or keyboard, it's like going to a party where you don't know anyone. It's also called a "ragchew." A ragchew is like walking into a stadium full of people who are just as interested in your hobby as you are, yet no one has really met anyone else yet. You can't talk to everyone, of course, but it's much more fun to have an interesting conversation than just an exchange of names and signal reports.

Almost every summer camp posts a banner in the mess hall which reads, "A stranger is just a friend you haven't met yet." The same holds true for Amateur Radio. There are thousands of friends out there, all over the world waiting to meet you.

But there is a difference between an ordinary QSO and a genuinely interesting conversation that can last for an hour or more—a ragchew. The hobby becomes much more rewarding when everyone involved actually enjoys it, rather than just a "Ho-hum, another simple contact." Make the QSO interesting! Get to know the other person.

WHAT DO I TALK ABOUT?

Finding common ground in an eyeball QSO or a conversation between people on separate continents is

easier than you think. It's just a matter of asking questions that the other person wants to answer. Everyone is genuinely proud of some accomplishment that will keep him or her talking for hours, once you ask about it.

A great thinker once said, "Every man is better than I am in some way. In that, I learn from him." I learned that the hard way recently when, after I butchered the engine in my car, my mechanic told me, "I'll make you a deal, Matt. You stay away from engines, and I'll stay away from VCRs!" That was an easy promise to keep. Everyone in the world does something better than I can, and I like to find out what that something is.

HOW TO ASK A QUESTION

Here's the key: don't ask a question that can be answered with a straight "yes" or "no," because it's likely to be all you'll get. It's not because the other ham is in a bad mood or shy, it's just that he can't think of anything else to say. When you ask a "why" question, you give him something to say!

"What other hobbies are you interested in?" It might help to list some of your favorites, as well. Then you two might find out you have some other common interest. Then there's really no limit to what you'll talk about after that.

"What's your job like?" Most hams spend a big chunk of their day winning bread for the table, and this

can give you a realistic description of what they are like. Plenty of hams are retired, so ask what they liked about their work and what they do now. Here are some responses I've heard over the air: "We farm." "I'm a high-school principal." "I work on a natural gas platform off the California coast." "Retired from the RCA machine shop." "I'm a solar astronomer at Kitt Peak, Arizona." "I'm a professional radio announcer." "I keep my rig here in the fire station." "We rebuild apartment complexes." "I'm an analytical chemist for the city water department." "I'm a brain surgeon." "I run a mission near Mexico City." "I own a carpet-cleaning service." "I'm a maintenance technician in the Air Force." "I'm retired, but I restore Model-T cars."

"Where are you going to school, and what are you studying? What's your favorite subject?" Every ham has gone to school somewhere at one time or another. You may discover that you have identical likes and dislikes about a particular subject. Once I talked with a ham in another state who was also studying the same subject I was, and we were able to share homework hints with each other over the air!

"In what room do you keep your shack?" It's rare to find a dedicated ham shack in the backyard anymore. But hams, being a creative lot, can pack a supreme station just about anywhere: in the kitchen, in the

(Continued on page 22)

They're Cheap, They're Important, They're FUN!

by NARA Staff

IN THE MARCH/APRIL issue of *The Amateur Radio Communicator*, we explained why QSLing is so much fun, why it's critical to most aspects of Amateur Radio enjoyment, and how to design your own QSLs for maximum accuracy and effect.

In this issue and the next, we're going to zero in on the use of the QSL Bureaus themselves. For now, let's talk in terms of getting your important QSL cards TO their designated DX addressees. In the next issue, we'll examine how to use the incoming bureau to keep those often-gorgeous works of art coming in by the carload FROM the DX stations.

The ARRL Outgoing DX QSL Bureau:

Even the skin-flint-iest amongst you will find the following to be interesting. This month we get into the whys, wherefores and methodologies of using the ARRL Outgoing DX QSL Bureau.

First off, it's cheap. DIRT cheap. Using the outgoing bureau will set you back a mere *two dollars per POUND* of outgoing cards. I mean, geez, Louise, given the cost of International Reply Postage Coupons (IRCs), you could *EASILY* spend two bucks on getting a single DX QSL card! Yessiree, this is the deal of the century.

Ah, but yes, with all good things, there are drawbacks. This otherwise-marvelous scheme has two, neither



You can send **ONE POUND** of QSL's like these (approximately 150) through the outgoing QSL Bureau for only two dollars. Cards courtesy of Rusprint.

of which prevent thousands of Amateurs each year from using the service, but just for the record:

1. ARRL membership is required. Indeed, of the 165,000 members of the American Radio Relay League, many of them profess to be members solely because of the substantial benefit of being able to utilize the outgoing QSL Bureau. And while they are generally aware of all the good things that the League does, and are in tune with the more than a hundred free services that ARRL offers to members and non-members alike, they are **MOST** familiar with the bureau. And use it, they do! 2. It's slow. As mentioned above, because of the

constraints of the various postal services around the world, in addition to the fact that there are numerous volunteers involved with the process, many cards take a year or more to arrive at their ultimate destinations.

Here's what ARRL HQ has to say about their fantastic outgoing QSL Service:

THE ARRL OUTGOING QSL SERVICE

Note: The ARRL QSL Service should not be used to exchange QSL cards within the 48 contiguous states. One of the greatest bargains of League membership is being able to use the ARRL Outgoing QSL Service to conveniently send your DX

WILL YOUR QSL CARD PRINTER MATCH RUSPRINT'S GUARANTEE ? ? ?

**YOU GET A 100 % RISK-FREE GUARANTEE WHEN YOU
PURCHASE YOUR QSL CARDS FROM RUSPRINT!**

We know when you order things by mail or phone you never know what you might receive. So, you need protection. Rusprint removes all risk to you with a guarantee unlike any we have seen in the QSL printing business. This guarantee applies to all products sold by Rusprint except the custom imprinting described below.

FOR YOUR PROTECTION-RUSPRINT'S GUARANTEE

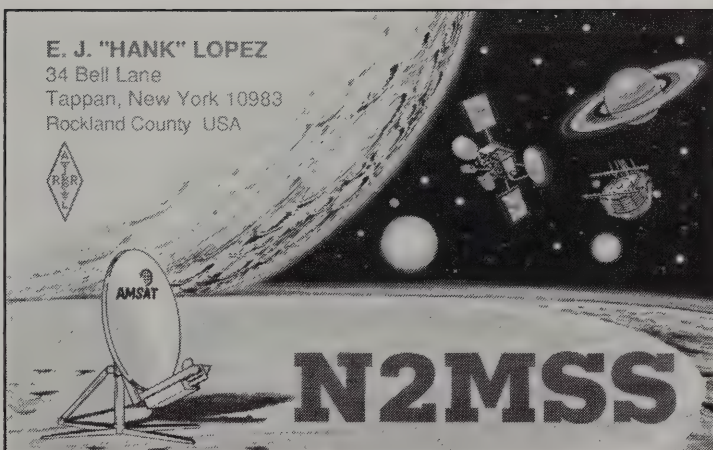
1. Your cards will be reprinted if Rusprint makes the mistake. There will be no charge and you don't need to return the cards.

2. Your cards will be reprinted if you had an error in the information you sent to Rusprint. Again, there will be no charge and you don't need to return the cards.

3. You also have 30 days to decide if you like your cards. If you don't like them you can still get your money back.

With Rusprint, you receive risk free purchasing and also have the convenience of ordering by phone toll free. Plus -- your check or charge is not deposited in our bank until we ship your order!

The Satellite card has been one of Rusprint's most popular. It is done in full color as featured on the cover of the March/April Issue of the *Communicator*. The regular price is \$27.95 for the 1st 100 cards and \$7 for each additional 100 + shpg & hdlg. The special price when ordered from this *Communicator* ad is \$25 for the 1st 100 and \$6 for each additional 100 cards + shpg & hdlg.



Call 1 800 962 5783 today to order your Satellite cards.

Summer Special

Get 250 Budget Saver cards on 67# Vellum Bristol white stock with your Call, Name, Qth and Front report form in Black, Red or Blue ink for only \$19. 500 cards \$25. 1000 cards - \$35. 2nd available color add \$7 per order. Shpg & hdlg is included in price. Call 1 800 962 5783 to order your cards.

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Rusprint can take your artwork design or photograph and imprint it on a large variety of items - such as caps, mugs, jackets, desk pen holders, plaques, decals, bumper stickers, polished brass or aluminum etc...

These items can be used for club logos or a club fund raiser. You can put your QSL card or a full color picture of your tower or shack with your name and/or

call on a cap, mug, shirt or item of your choice.

Set up charges are minimal and you get to see a proof before we print the articles. The only limitation is that the item to be imprinted must be of a light color such as white, tans, beiges, pastels etc...

Be sure to indicate if you are interested in these services!

A SPECIAL NOTE! We have chosen this method of telling you about Rusprint instead of sending you another piece of junk mail. To receive your full color flyer, simply call toll free 1 800 962 5783 or send \$1 (refundable if you order) for the full color flyer and liberal samples.

Rusprint

26037 W. 220th Terr. Dept. 7

Spring Hill, KS 66083

Phone 1 800 962-5783

FAX 1 913 686 2484

8AM - 5PM M-F Central Time

Frank, Please send me your color flyer and samples of the Rusprint QSL cards. \$1 is enclosed to cover costs.

Include information about Special Imprinting services ☐ Yes ☐ No.

Call _____ Date _____

Name _____

Address _____

City _____ State _____ Zip _____

⑦ Your name will NOT be sold to any other company or mailing list!

QSL cards overseas to foreign QSL Bureaus. Your ticket for using this service is your QST address label and just \$2.00 per pound. For those not quite so DX active (sending 10 cards or less), enclose \$1.00. You can't even get a deal like that at your local warehouse supermarket! And the potential savings over the substantial cost of individual QSLing is equal to many times the price of your annual dues.

Your cards are sorted promptly by the Outgoing Service staff, and cards are on their way overseas usually within a week of arrival at ARRL Hq. More than two million cards are handled by the Service each year, and one year recently, they handled an incredible three million!

QSL cards are shipped to QSL Bureaus throughout the world, which are typically maintained by the national Amateur Radio Society of each country. While no cards are sent to individuals or individual QSL managers, keep in mind that what you might lose in speed is more than made up in the convenience and savings of not having to address and mail QSL cards separately. (In the case of DXpeditions and/or active DX stations that use U.S. QSL managers, a better approach is to QSL directly to the QSL manager. The various DX newsletters, the W6GO QSL manager directory, and other publications, are good sources of up-to-date QSL manager information.)

As postage costs become increasingly prohibitive, don't go broke before you're even halfway towards making DXCC. There's a better and cheaper way—"QSL VIA BURO" through the ARRL outgoing QSL Service!

HOW TO USE THE ARRL OUTGOING QSL SERVICE

1) Presort your DX QSLs alphabetically by parent call-sign prefix (AP, C6, CE, DL, F, G, JA, LU, PY, 5N, 9Y and so on). NOTE: Some countries have a parent prefix and use additional prefixes, i.e., U (parent prefix) = R, 4K,... . When sorting countries that have multiple prefixes, keep that country's prefixes grouped

together in your alphabetical stack. Addresses are not required.

DO NOT separate the country prefix by use of paper clips, rubber bands, slips of paper or envelopes.

2) Enclose the address label from your current copy of QST. The label shows that you are a current ARRL member.

3) Enclose payment of \$2.00 per each pound of cards—approximately 150 cards weigh one pound. A package of ten (10) cards or less costs only \$1.00. Please pay by check (or money order) and write your call sign on the check. Send "green stamps" (cash) at your own risk.

4) Include only the cards, address label and check in the package. Wrap the package securely and address it to the ARRL Outgoing QSL Service, 225 Main Street, Newington CT 06111.

5) Family members may also use the service by enclosing their QSLs with those of the primary member. Include the appropriate fee with each individual's cards and indicate "family membership" on the primary member's QST address label.

6) Blind members who do not receive QST need only include the appropriate fee along with a note indicating the cards are from a blind member.

7) ARRL affiliated-club stations may use the service when submitting club QSLs by indicating the club name. Club secretaries should check affiliation papers to ensure that affiliation is current. In addition to sending club station QSLs through this service, affiliated clubs may also "pool" their members' individual QSL cards to effect an even greater savings. Each club member using this service must also be a League member. Cards should be sorted "en masse" by prefix, and a QST label enclosed for each ARRL member.

RECOMMENDED QSL-CARD DIMENSIONS

The efficient operation of the worldwide system of QSL Bureau requires that cards be easy to handle and sort. Cards of unusual dimensions, either much larger or much

smaller than normal, slow the work of the Bureaus, most of which is done by unpaid volunteers. A review of the cards received by the ARRL Outgoing QSL Service indicates that most fall in the following range: Height = 2-3/4 to 4-1/4 in. (70 to 110 mm), Width = 4-3/4 to 6-1/4 in. (120 to 160 mm). Cards in this range can be easily sorted, stacked and packaged. Cards outside this range create problems; in particular, the larger cards often cannot be handled without folding or otherwise damaging them. In the interest of efficient operation of the worldwide QSL Bureau system, it is recommended that cards entering the system be limited to the range of dimensions given. [Note: International Amateur Radio Union (IARU) Region 2 has suggested the following dimensions as optimum: Height 3 1/2 in. (90 mm), Width 5 1/2 in. (140 mm).]

Some countries do not allow the QSL Bureau to send cards to Amateurs there, or in some cases, it's just not practical. The following list gives the prefix for countries to whom Amateur Radio cards cannot be sent by the ARRL Outgoing QSL Bureau.

A5	A6	A7	C9	D2
EP	ET	J5		
KC4	U.S. bases in Antarctica			KC6
KH0	KH1	KH4	KH5	KH7
KH8	KH9	KH0	KP1	KP5
OD	P5	S2	S7	T2
T3	T5	TJ	TL	TN
TT	TY	TZ	V3	V4
V6	KC6	Micronesia		VP2E
VP2M	VR6	XT	XU	XV
XW	XX9	XZ	YA	YI
ZA	1Z	ZD7	ZD9	ZK3
3C0	3C	3V	3W,	3X
4W	5A	5H	5R	5 T
5U	5X	7O,	7Q	8Q
9G	9N	9Q	9U	9X

That, then, pretty well describes the outgoing DX QSL Bureaus. In the next issue we will discuss the incoming bureau where the DX QSL cards come in and prove you really did work that station in Upper Slobovia.

73s from NARA Staff



Dear Don:

Diversity is a part of our civilization. To label the users of two meters as "self appointed experts" may limit ones chance to learn something new from another ham who may have a more diverse background than yourself, whether it be in communications expertise, world travels, science, literature, mathematics, or even the ability to understand human nature and bring out the best in others. Everyone deserves a chance, those who will go forward in their knowledge will. Those who cannot, will choke themselves via their own devices, without outside assistance. Emphasis should be placed on setting a good example. For every person operating on a frequency, there are usually many others "lurking" behind the receiver, some hanging on every word. It should never be an embarrassment to invite someone into your shack and tune around the bands, whether is be below or above 30 MHz, below or above the horizon.

Cheers, David Little, KD4NUE

You said it all, David, and very well I might add.

Dear Don

I just receive a sample copy of the *Communicator* and I am impressed. One request, please don't ever run near diamond-size columns of bozos who just got their Worked Everywhere certificate or a three-part series on how to design a reverse back scatter filter for 160 meters. Oh yes, you'll find my subscription enclosed.

73, Bob Desiderio, KU4L,

Daytona Beach FL

No chance of that, Desi. Every inch of the magazine is too valuable to include limited interest material.

Dear Don:

The codeless Techs in this area attend our club meetings and participate in social events and work with us at public events. They do feel that their license is inferior and the result is that they may or may not attend our radio classes. I am perplexed at your letter speaking of

representing the interests of these Amateurs. Since we are all Amateur Radio operators, why would they have an interest different from that of all operators.

73, Norma Vanderhoff, W3CG

Norma, you partially answered your own question. We believe that Technicians are every bit as good as any other class. But, in many cases they only know what they had to learn to pass their test. This can lead to feelings of second-class status. One of NARA's jobs is to encourage them to learn more, have a well-rounded knowledge of the hobby and upgrade to higher classes. You'll notice that all the material in our magazine is written for the beginner. That's what we mean by representing their interests.

Dear Don:

I was given my Novice exam outside the VE program by two fine persons holding a General class license. I won't mention their names but they will know when this letter is published. I just wanted you to know there is no RAMPANT CHEATING going on in Shelbyville, Kentucky. These two operators are above anything such as that.

73, Rusty Barber, KD4HRW

(age 66)

As you know by now, Rusty, the Novice class has been folded into the VE program. But pass my regards on to your two friends. It sounds like they brought another good ham into the fraternity!

Dear Don:

I am 66 years old and since I joined NARA, I have gone from Novice to General and soon to Advanced. We have a new program called Pal Hams for all kids up to 17 years old. Thanks for the copy of *Amateur Radio-King of Hobbies*. What a great job and lots of thought was put in to the booklet.

73, L.P. Tuttle, KD6CHH

Thanks for the kind words, LP. Why don't you write a short article on how to form a Pal Hams group in other areas? Amateur Radio-King of Hobbies is free to anyone who calls our toll-free number, 1-800-GOT-2-HAM.

Dear Don:

You had a very good article on QSL cards, but I believe a few things could be added to help in getting a return QSL. (1) Use a one sided card, i.e. with all the info on one side, (2) Never use the two letter state symbol. Spell it out. If you received a card from SI, would you know it was from Siberia? (3) Print clearly, (4) Remember, midnight GMT starts a new day, not midnight local time, (5) Don't use numbers for the month, spell it out. In other countries, no one is sure if you have put the month or day first. Finally (6) give an honest signal report. Not everyone can be 599.

73, Joseph Kofron, K7GW
Las Vegas, Nevada

Another winner. I could not have said it better!

Dear Don:

Thanks for your ideas and writing over the years. Don't let the criticism bother you. If the mail gets slow, you should come out with an article advocating retesting of hams every 10 years to renew their licenses. That should get some interesting reactions from the masses!

73, Walter Neaves, K5KNE
Belton, Texas

Hey, that's an interesting idea, Walt. Now, let's see where did I put that material for my next editorial?

Dear Don:

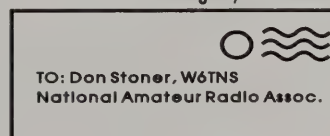
We live in a society where a large number of people have confused a right with a privilege. There is a difference between working and earning versus talking and receiving. As one fellow said today on a talk show, a right cannot be something which must be provided by someone else's labor. That is *plunder*. Unfortunately that's what too many people want today. If I have worked to obtain something, they think they have a right to have it too. Keep up with the good work!

73, Dean Norris, K7NO

Join The Dialog!

Write to us at NARA

P.O. Box 201407 Arlington, TX 76006



Ragchew

(Continued from page 4)

garage, or in the car. One ham I talked with said, "I'm talking from inside a closet in the basement, next to the washing machine." Another ham said, "I live in an apartment, but I use a tuner to load up the balcony railing as my antenna."

"What's the most memorable Field Day you've ever had?" Field Day takes place every year on the last full weekend in June, and taking part in at least one should be the goal of every ham. The object is to set up a station that operates on emergency power, such as a generator or batteries, and contact as many stations as possible within 24 hours. Most importantly, all hams have fun in the process. But something always happens, each and every year, to hurl a monkey wrench into the works: someone forgets an important cable, the generator runs out of gas, a thunderstorm wipes out the camp, you run out of pencils, and so on. If you've never participated in Field Day, try it once. You'll have plenty to talk about after that!

"How did you get started in Amateur Radio?" This is a sure-fire ragchew starter! But a question that might top it is, "What's the most interesting QSO you've ever had?" We all have at least one memorable contact that stands out; what's yours?

"_____?" (Fill in the blank.) Use your imagination and ask a question that you think the other ham will particularly enjoy answering. Make it an interesting one. "Can you recommend a particular piece of radio equipment?" "How did you like the lunar eclipse tonight?" "How did you and your spouse meet?" "You're active in ATV? I've been interested in that for a long time. Tell me more about it."

"WX HR IS..."

Some might find the weather report boring. If you've got to talk about the weather, ask something like "What's the worst weather been like there?" You're then likely to hear some grabbers about hurricane

Hugo, a massive flood, a teeth-rattling earthquake, a crippling snowstorm or the mysterious habits of tornados. Perhaps the other ham provided emergency communications during a local civil disaster. That's a story to tell around the campfire!

Listen to the HF bands when a civil emergency hits a certain region of the country and you're sure to hear some fascinating stories. One guy in Oregon told me about his weather without my even asking, because "I'm up to my armpits in snow, and the blizzard knocked off all our packet links to the outside world!"

TABOO TOPICS

The character Linus, from the comic strip Peanuts, once said, "There are three things I've learned never to discuss with people: religion, politics, and the Great Pumpkin." Amateur Radio is not a radio call-in show. No matter what position you take, half your audience immediately disappears. Stay away from religion and politics, particularly when chatting with DX stations. This is a hobby, and it's supposed to be fun! Let's all do our best to keep it that way.

HOW ABOUT CW?

A CW ragchew is particularly enjoyable because you unconsciously increase your code speed. After a while you can anticipate the next character. Asking thought-provoking questions here can also dramatically increase your chances of receiving a QSL card.

HOW DO YOU KNOW WHEN YOU'VE HAD A GOOD QSO?

It's easy to get so wrapped up in a QSO that you lose all track of time. Sometimes a single conversation can last for hours. And then, once either you or the other ham signs off for one reason or another, another ham calls. "I've been listening to you guys for a while, and..." That's the best indication that you've had a genuine ragchew: someone else wants to talk to you, too!

73 de Matt McCullar, KJ5BA

Accident

(Continued from page 13)

barrel now weighed 20 pounds. I refer you again to my weight in box 11. As you might imagine, I began a rapid descent down the side of the tower. In the vicinity of the 40-foot level, I met the barrel coming up. This accounts for the two fractured ankles and the lacerations on my legs and lower body.

The encounter with the barrel slowed me enough to lessen my injuries, when I fell onto the pile of tools and fortunately, only three vertebrae were cracked. I am sorry to report, however, that as I lay there on the tools, in pain, unable to stand, and watching the empty barrel 80 feet above me—I again lost presence of mind. I let go of the rope.

From Key Klix—Santa Barbara, Florida Skip and K4QFM, via KOPP

Annual Special Event Station at 1993 New York State Fair

Make contact with the Liverpool Amateur Repeater Club's Amateur Radio Special Events Station at the 1993 New York State Fair Friday, August 27th, through Monday, September 6th, and receive a 1993 New York State Fair Special Event Certificate. Over 100 volunteers will keep the station on the air from 10a.m. to 9p.m. on Packet, HF and VHF. The station will operate in the bottom 25 kHz of the General phone and CW portions of 80, 40, 20, 15 and 10 meters.

The Amateur Radio Station will demonstrate many modes of operation to the general public.

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NARA Is The Only National Organization

exclusively devoted to

Novice and Technician Class Amateurs!

Who Is The National Amateur Radio Association?

NARA is striving to publicize Amateur Radio to the general public, attract young people to the Amateur Radio Service, increase the stature and benefits of the Novice and Technician class license and save the various Amateur bands from confiscation by commercial interests.

➔ **Recently, Amateur Radio lost part of the 220-MHz band and, in some areas of the country, is in the process of losing access to another band (900 MHz).**

We must get more people involved in the Amateur Radio Service so we can increase activity and retain our remaining Amateur bands.

NARA brings you an exciting future as an Amateur Radio operator!

Who Should Belong to the National Amateur Radio Association?

- Anyone interested in obtaining an Amateur Radio license
- New Amateur Radio operators of all classes
- Public and private school teachers who want to introduce their students to Amateur Radio
- Beginning Novice and Technician class Amateurs
- Elmers who want to assist beginners
- All Amateurs concerned about the future of the Amateur Radio Service

What Will You Gain when You Join NARA?


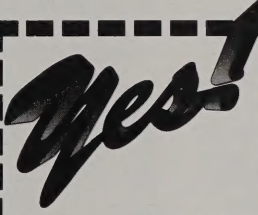
- 1 Knowledge to help you get the most from the Amateur Radio Service
- 2 You will insure a solid future for the Amateur Radio Service
- 3 You will be helping others become involved in Amateur Radio
- 4 Plus you receive our member journal, *The Amateur Radio Communicator*!

➔ **Join the National Amateur Radio Association and receive *The Amateur Radio Communicator*!**

Here's What You'll Find in the *Communicator*!

- Colorful editorials by Don Stoner, W6TNS
- The electronic adventures of Dan and Burke
- Satellite communications
- Transmitter hunting
- Help passing your Novice or Tech exam
- Erecting your first antenna, propagation
- Types of Amateur Communication
- Pictures and news about other Novices and Technicians...The Future of Our Hobby
- Hot Tips—News you need as an Amateur
- Current information on the VE program
- Repercussions that regulation changes will have on the future of Amateur Radio

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HOW DID I GET THIS MAGAZINE?

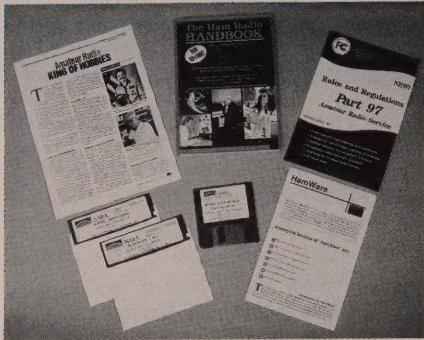
ONE OF THE WAYS WE CAN TELL THE WORLD ABOUT the goals and ambitions of the National Amateur Radio Association is to supply complimentary copies. We send about 10,000 pieces to newly licensed hams. This magazine is also mailed to a select list of people who might be interested in becoming Amateurs. We also send approximately 10,000 copies to NARA members and prominent people in Amateur Radio.

If your mailing label does not include a NARA membership number, this may be your last or only copy of *The Amateur Radio Communicator*. We would like to continue providing you with this

informative publication, but we can only do so if you are a member of NARA. For those interested in becoming a ham, or who are newly licensed, a membership in NARA represents an outstanding bargain. A membership, which includes a subscription to *The Amateur Radio Communicator*, is only \$10.00 per year.

Check the mailing label for your membership number. If you don't see one, look at the NARA advertisement and read the benefits of becoming a member of this fast-growing organization. We need your support and so does ham radio. Help us get it "going and growing!"

AVAILABLE FROM NARA



Pass the New Codeless Technician Test!

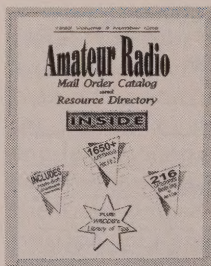
Everything you need to pass the new codeless Technician Class exam! The **NARA Codeless Technician Package** includes:

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- Bonus Morse code training program (IBM) 0 to 25wpm
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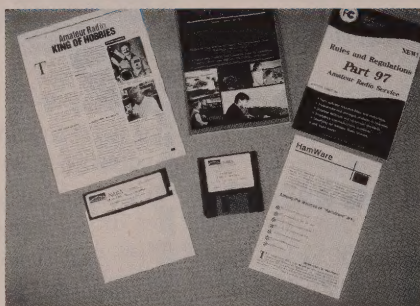
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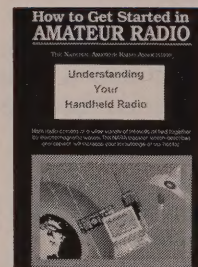
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